

ARTG6900 Data Visualization Workshop

Instructor Siqi Zhu

Class 1:35PM — 5:05PM

Th Ryder Hall 301

Description

This course builds on the foundational skills acquired in ARTG5330 Visualization Technologies, and introduces students to intermediate- to advanced-level topics in web-based interactive visualization. The focus of the course is both on building greater proficiency in working with d3 and related JavaScript libraries, and on acquiring knowledge of best practices and common patterns in data visualization problem-solving. Through lectures, workshops, and a final project, students will learn to effectively deploy their data visualization skills to explore and extract understanding from data in a critical and productive way.

Objectives

This course aims to help students consolidate and expand their knowledge of d3 and other essential JavaScript libraries for interactive data visualization. The advanced technical topics covered in this class will include:

- Management and efficient manipulation of large datasets;
- Advanced rendering techniques;
- Advanced user interactions;
- Modular, re-usable code development.

More broadly, this course also aims to prepare students to effectively deploy these tools and techniques in practice. Students will gain stronger intuitions about the appropriate uses (and potential abuses) of data visualization, and learn to apply it as an exploratory tool and expressive medium to a wide variety of datasets.

Tool Requirements

The tools required for this class are consistent with those for ARTG5330 (WebStorm or Sublime; Git; and Python).

Overview of Format

This course will consist of lectures and workshops. Lectures will focus on introducing new concepts and techniques, while workshops will allow students to implement these concepts and techniques in the context of their own projects under instructor and TA supervision. In the last month of the semester, workshops will be devoted to individual critique and group pin-ups. Final review will take place on April 21.

The ultimate outcome of this class will be a self-directed data visualization project. Students will undertake the final project in groups of two, to be assigned at the instructor's discretion. For the final project, students can work with an assigned dataset or a different one contingent on instructor approval.

Course Resources

Course website: <http://viztech.github.io>

One-stop location for lecture slides, assignments, readings, and other content. Supplementary material marked "Important" is essential information for the class, and should be reviewed carefully.

Course Github Account: [viztech](https://github.com/viztech)

Repository for all code used in class and for assignments.

Slack Channel: <https://viztech2015s.slack.com>

Useful for virtual office hours and group work

Office Hours

Office hour will be available on Slack every week, and in-person office hour can be scheduled as necessary.

Rules and Regulation

Attendance: You are expected to attend every class; missed classes will mean that you will miss valuable information. Unexcused absences can affect your grade.

Reading assignments and class activities: There will be regular reading assignments over the course of the semester, made available through the blackboard site. You are expected to actively participate in all activities during class – in order to do that, you need to complete all necessary readings before class.

Assignments: You are expected to keep a research journal of your work and progress throughout the semester, containing the assignments, reading reflections, visualizations and diagrams, a documentation of your project progress and other relevant information.

Integrity: you are requested to abide by Northeastern University's Academic Integrity Policy, which you can read at: <http://www.northeastern.edu/osccr/academicintegrity/>

Grading and Rubric.

| | |
|------------------------|-----|
| Process and engagement | 30% |
| Assignments | 20% |
| Final project | 50% |

Weekly Schedule

Week 1 / Jan 14 Lecture: Course Overview; Review of Key Data Visualization Concepts

Week 2 / Jan 21 Workshop: Introduction to the Hubway Dataset

[Assignment 1](#)

Due Jan 28

Week 3 / Jan 28 Lecture: Introduction to Writing Re-usable D3

[Final Project Proposal](#)

Students to present first draft of their final project proposal

Week 4 / Feb 4 Workshop: Writing Modular D3

Week 5 / Feb 11 Lecture: Working with Data Client-side; Crossfilter.js

[Assignment 2](#)

Due Feb 18

Week 6 / Feb 18 Workshop: Working with Client-side Data

Week 7 / Feb 25 Lecture: Advanced Interactions

Week 8 / March 3 Workshop: Working with Advanced Interactions and Events

Week 9 / March 10 Lecture: Advanced Rendering Techniques

[Assignment 3](#)

Due Mar 24

Week 10 / March 17 Workshop: Advanced Rendering Techniques

Week 11-14 / March 24; April 1,7,14 Workshops

[Pin-up 1 on March 24](#)

Present refined research questions, wireframes, graphic mockups

[Pin-up 2 on April 1](#)

Week 15 / April 21 Final Review